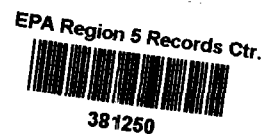


CLOSURE OF WASTE PILE AREA

FULTON INDUSTRIES, WAUSEON, OHIO



Fulton Industries
P.O. Box 377
135 E. Linfoot Street
Wauseon, OH 43567-0377

Attention: Mr. Richard Cheney

Report No. 39321-586-074

June 2, 1986



FOUNDED 1911

122 S. St. Clair St. • P.O. Box 838 • Toledo, OH 43696-0838 • 419/255-8200

June 2, 1986

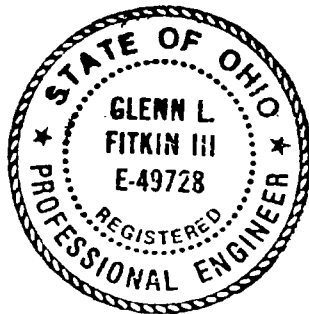
Fulton Industries
P.O. Box 377
135 E. Linfoot Street
Wauseon, OH 43567-0377

Attention: Mr. Richard Cheney

RE: Closure of Waste Pile Area
Fulton Industries
Wauseon, Ohio
Report No. 39321-586-074

Gentlemen:

Attached is our closure certification report for the previous waste pile facility at Fulton Industries in Wauseon, Ohio. The closure at the waste pile area has been accomplished in substantial accordance with the Closure Certification Plan (Revised 10-17-85).



Respectfully submitted,

BOWSER-MORNER ASSOCIATES, INC.

Glenn L. Fitkin, P.E.
Civil/Environmental Engineer

GLF:j1(9)
3-Client
1-Mr. Richard T. Sargeant
Eastman and Smith

BOWSER-MORNER, INC.
Testing Division

BOWSER-MORNER ASSOCIATES, INC.
Engineering Division

Other

420 Davis Ave. • P.O. Box 51 • Dayton, OH 45401-0051 • 513/253-8805

Locations:

169 E. Reynolds Rd. • P.O. Box 24289 • Lexington, KY 40524-4289 • 606/273-9111

CLOSURE CERTIFICATION--FULTON INDUSTRIES--WAUSEON, OHIO

INTRODUCTION:

Fulton Industries submitted to Ohio EPA a Closure Certification Plan dated October 17, 1985, for their waste pile storage unit. The waste pile had been removed in 1982 and disposed of at a hazardous waste facility; however, Ohio EPA in 1985 requested that the closure of the facility be certified.

The closure plan stated that Fulton Industries would obtain background soil samples and soil samples from within the waste pile area and analyze them for cyanide, cadmium, chromium, and nickel. The analytical results were to be evaluated using the Student's t-test at a level of significance of 0.01. To complete closure, none of the waste pile area soil samples could have concentrations of any of the inorganic constituents statistically exceeding background concentrations.

The following is a description of the closure activities which have occurred, and an evaluation and presentation of the analytical data.

WORK PERFORMED:

On November 25, 1985, soil samples were obtained at the Fulton Industries, Wauseon, Ohio, facility. Mr. David Ferguson of Ohio EPA was present. Four background soil samples and a sample from each of four quadrants of the waste pile area were obtained. Each sample was retrieved with an open tubular auger to represent the interval from the ground surface to a depth of 6-10 inches below the ground surface. Several subsamples were obtained to make up a complete sample at each sample location. All soil samples were placed directly into sample containers which were labeled and sealed.

The samples were transported to the BOWSER-MORNER laboratory for analysis. Total cyanide was determined according to Standard Methods for the Examination of Water and Waste Water, 16th Edition, since an applicable method is not contained in the U.S. EPA SW846 document. Cadmium, chromium, and nickel were determined according to "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods," SW846, U.S. EPA, Office of Solid Waste. Test results are presented in Laboratory Report R112915, dated December 26, 1985. The Laboratory Report and a sample location plan are included in Attachment A.

Sample Nos. 1, 2, 3, and 4 were intended to be used as background samples. It was apparent, based on review of the data, that sample No. 1 contained elevated concentrations of some of the constituents. Based upon this, Fulton Industries performed an in-house investigation and determined that some contaminated soil and waste materials existed in areas outside of the waste pile area. The area in question was excavated with all excavated materials transported to and disposed of at Fondessy Landfill in Oregon, Ohio.

Samples 5, 6, 7, and 8 represented soil in the waste pile area and apparently contained elevated concentrations of the constituents.

Fulton Industries notified Ohio EPA of the results and their intention to excavate and dispose in a letter dated January 8, 1986.

After excavation of waste materials in the area of sample No. 1, additional samples were obtained by BOWSER-MORNER on March 25, 1986, in a manner similar to that described above. Analytical results are reported in BOWSER-MORNER Laboratory Report S032618, dated April 15, 1986. The report and sample locations are presented in Attachment A. Sample No. 1 and No. 2 were taken in the

excavated area. Sample No. 3 was a soil/waste material mixture that was observed adjacent to the excavated area, and sample No. 4 was a soil sample taken beneath the visually contaminated material. Sample Nos. 1 and 2 were evaluated statistically for certification of the closure as presented in the next section. Sample Nos. 3 and 4 were obtained for informational purposes only.

It was observed that apparent contaminated materials still existed adjacent to the excavated area. Fulton Industries initiated excavation and disposal of visually contaminated materials on April 30, 1986. BOWSER-MORNER personnel observed the excavation operations. Excavation was continued until all visible traces of apparent contamination were removed starting at the waste pile area and the aforementioned excavation and working outward.

On May 5, 1986, ten soil samples were obtained by BOWSER-MORNER. The test results are reported in Laboratory Report S050768, dated May 22, 1986. Sample locations and the limits of the excavated area are indicated on the plan which accompanies the Laboratory Report. Both the report and plan are included in Attachment A. Sample Nos. 1 and 2 were intended to represent background conditions. Sample Nos. 3, 4, 5, and 6 represent remaining soil in the excavated area outside of the waste pile area. They were taken at random locations. Sample Nos. 7, 8, 9, and 10 were taken within the waste pile area and represent remaining soil. All samples represent the upper 6"-10" of the remaining soil profile.

All of the soil samples were transported to the BOWSER-MORNER laboratory and analyzed according to the methods referenced above.

EVALUATION OF DATA:

Five soil samples were designated as background samples. The analytical results for the samples are summarized in Table 1 along with the mean and standard deviation for each of the four constituents. To facilitate utilization of the specified statistical method, values reported as being below the detection limit were considered to equal the detection limit.

The Student's t-test at a level of significance of 0.01 was used to evaluate the samples representing soil remaining after excavation of contaminated materials. The soil sample results were compared statistically to the background soil analytical results. Results of the statistical evaluation are presented in Table 2, Table 3, Table 4, and Table 5. A soil sample would be considered to have a concentration statistically greater than background if the t^* value exceeds the t_c value. As indicated in the tables, none of the sample results were found to statistically exceed background concentrations.

Certification

It is the opinion of BOWSER-MORNER, based upon field observations, the analytical results and the statistical evaluation, that the waste pile facility has been closed in substantial accordance with the Closure Certification Plan previously submitted to Ohio EPA.

Table 1
Fulton Industries--Wauseon, Ohio
Background Data

<u>Laboratory Report Date</u>	<u>Sample No.</u>	<u>Cyanide (mg/kg)</u>	<u>Cadmium (mg/kg)</u>	<u>Chromium (mg/kg)</u>	<u>Nickel (mg/kg)</u>
12-26-85	2	<0.5	<1	24	27
12-26-85	3	<0.5	<1	21	20
12-26-85	4	1.0	3	77	50
5-22-86	1	<0.5	<1	24	110
5-22-86	2	<0.5	<1	20	110
Mean:		0.6	1.4	33.2	63.4
Standard Deviation:		0.22	0.89	24.6	44.0

Table 2
Fulton Industries--Wauseon, Ohio
Statistical Evaluation of Cyanide Data

<u>Laboratory Report Date</u>	<u>Sample No.</u>	<u>C Y A N I D E</u>		
		<u>Analytical Result (mg/kg)</u>	<u>t*</u>	<u>Significantly Greater Than Background</u>
4-15-86	1	0.3	-1.244	No
4-15-86	2	0.2	-1.659	No
5-22-86	3	<0.5	-0.414	No
5-22-86	4	<0.5	-0.414	No
5-22-86	5	<0.5	-0.414	No
5-22-86	6	<0.5	-0.414	No
5-22-86	7	<0.5	-0.414	No
5-22-86	8	<0.5	-0.414	No
5-22-86	9	<0.5	-0.414	No
5-22-86	10	<0.5	-0.414	No

$$t_c (0.01, 4) = 3.747$$

Table 3

Fulton Industries--Wauseon, Ohio
Statistical Evaluation of Cadmium Data

<u>Laboratory Report Date</u>	<u>Sample No.</u>	<u>C A D M I U M</u>		<u>Significantly Greater Than Background</u>
		<u>Analytical Result (mg/kg)</u>	<u>t*</u>	
4-15-86	1	<5	3.692	No
4-15-86	2	<5	3.692	No
5-22-86	3	<1	-0.410	No
5-22-86	4	<1	-0.410	No
5-22-86	5	1	-0.410	No
5-22-86	6	3	1.641	No
5-22-86	7	<1	-0.410	No
5-22-86	8	<1	-0.410	No
5-22-86	9	<1	-0.410	No
5-22-86	10	1	-0.410	No

$$t_c (0.01, 4) = 3.747$$

Table 4

Fulton Industries--Wauseon, Ohio
Statistical Evaluation of Chromium Data

<u>Laboratory Report Date</u>	<u>Sample No.</u>	<u>C H R O M I U M</u>		
		<u>Analytical Result (mg/kg)</u>	<u>t*</u>	<u>Significantly Greater Than Background</u>
4-15-86	1	55	0.809	No
4-15-86	2	31	-0.082	No
5-22-86	3	20	-0.490	No
5-22-86	4	25	-0.304	No
5-22-86	5	27	-0.230	No
5-22-86	6	62	1.069	No
5-22-86	7	30	-0.119	No
5-22-86	8	28	-0.193	No
5-22-86	9	25	-0.304	No
5-2286	10	30	-0.119	No

$$t_c (0.01, 4) = 3.747$$

Table 5

Fulton Industries--Wauseon, Ohio
Statistical Evaluation of Nickel Data

<u>Laboratory Report Date</u>	<u>Sample No.</u>	<u>N I C K E L</u>		
		<u>Analytical Result (mg/kg)</u>	<u>t*</u>	<u>Significantly Greater Than Background</u>
4-15-86	1	2	-1.274	No
4-15-86	2	5	-1.212	No
5-22-86	3	150	1.797	No
5-22-86	4	130	1.382	No
5-22-86	5	34	-0.610	No
5-22-86	6	42	-0.444	No
5-22-86	7	44	-0.403	No
5-22-86	8	34	-0.610	No
5-22-86	9	28	-0.734	No
5-22-86	10	54	-0.195	No

$$t_c (0.01, 4) = 3.747$$

ATTACHMENT A

Analytical Results and Sample Locations

BOWSER-MORNER, INC.

CORPORATE: 420 Davis Ave. • P.O. Box 51 • Dayton, OH 45401 • 513/253-8805
TOLEDO DISTRICT: 122 S. St. Clair St. • P.O. Box 838 • Toledo, OH 43696 • 419/255-8200

LABORATORY REPORT

Report to: Fulton Industries
% BOWSER-MORNER, INC.
P. O. Box 838
Toledo, Ohio 43696
Attn: Mr. Glen Fitkin

Date: December 26, 1985
Laboratory No.: R112915
Authorization:

Report on: Eight (8) Soil Samples for Cyanide and Metals Analyses, Received
November 29, 1985.

SAMPLE IDENTIFICATION:

The samples were identified as 1 through 8.

ANALYTICAL METHODS:

The cyanide analysis was performed in accordance with Standard Methods for the Examination of Water and Wastewater, 16th edition. The metals analyses were performed according to "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods," SW-846, U.S. EPA Office of Solid Waste.

QUALITY ASSURANCE:

Our analyses included certified quality control samples. The percent recoveries obtained in our analyses of these samples are reported in a section after the soil sample results.

TEST RESULTS:

A. Soil Samples Analyses:

<u>Sample</u>	<u>Cyanide,</u> <u>mg/kg</u>	<u>Cadmium,</u> <u>mg/kg</u>	<u>Chromium,</u> <u>mg/kg</u>	<u>Nickel</u> <u>mg/kg</u>
1	12.5	36	540	220
2	<0.5	<1	24	27
3	<0.5	<1	21	20
4	1.0	3	77	50
5	82.5	180	4700	1600
6	19.0	40	790	340
7	28.0	50	1100	480
8	42.0	77	1600	530

- Continued -

Fulton Industries
Page 2
Lab. Report No. R112915

B. Quality Assurance Analyses:

<u>Parameter</u>	<u>Percent Recovery</u>
Cyanide	103
Cadmium	105
Chromium	98
Nickel	105

Respectfully Submitted,

BOWSER-MORNER, INC.

James M. Kemper

James M. Kemper

Chemist

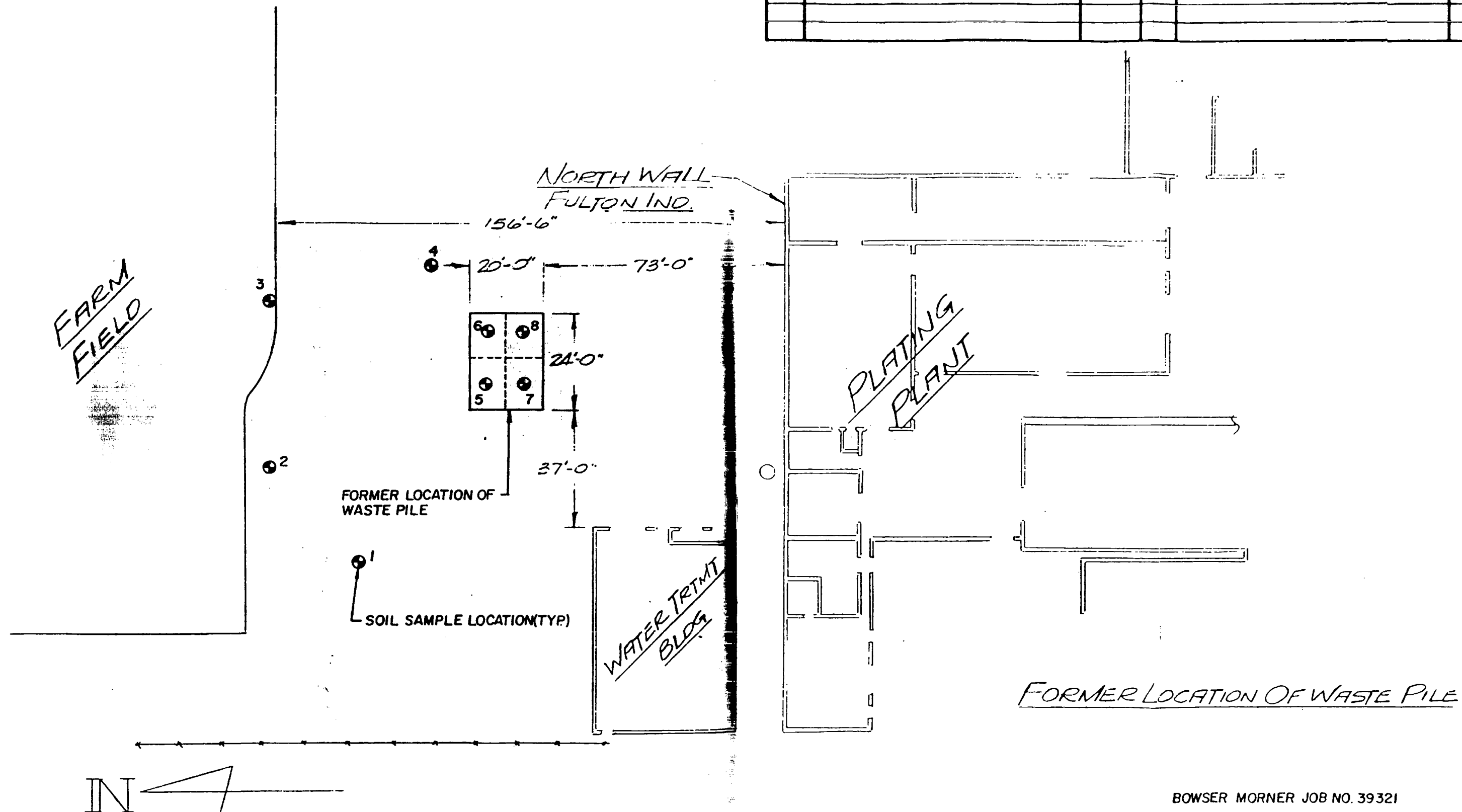
Analytical Sciences Division

JMK/rnj
1-Client
2-File

All samples recovered from this project will be retained at this laboratory for a period of 30 days unless we are informed to the contrary.



LET.	REVISIONS	DATE	LET.	REVISIONS	DATE
A	SOIL SAMPLE LOCATIONS (BY BOWSER MORNER)	1-3-86			



BOWSER MORNER JOB NO. 39321

OPERATIONS	UNLESS OTHERWISE SPECIFIED		FULTON INDUSTRIES INC. WAUSEON, OHIO
	DEC. ±	FRACT. ±	
	MAT'L:		DR: <i>HRS</i> SCALE: 1"=30'-0"
	HARDNESS		CK: <i>PHILIPS</i> DATE: 10-11-85
	R. LG:	WIDTH:	CUST. NO.:
	STRT'G GAGE:		NAME:
	STOCK NO:		PART NO.:

BOWSER-MORNER, INC.

CORPORATE: 420 Davis Ave. • P.O. Box 51 • Dayton, OH 45401 • 513/253-8805
TOLEDO DISTRICT: 122 S. St. Clair St. • P.O. Box 838 • Toledo, OH 43696 • 419/255-8200

LABORATORY REPORT

Report to: Fulton Industries
% BOWSER-MORNER, INC.
P. O. Box 838
Toledo, Ohio 43696
Attn: Mr. Glen Fitkin

Date: April 15, 1986
Laboratory No.: S 032618
Authorization:

Report on: Four (4) soil samples received March 26, 1986 for chemical analysis.

SAMPLE IDENTIFICATION:

The samples were identified as;

1, 2, 3, and 4.

ANALYTICAL METHODS:

For total cyanide the samples were prepared according to the EPA Field and Laboratory Methods Applicable to Overburdens and Minesoils; analysis was according to Standard Methods for the Examination of Water and Wastewater, 16th Edition.

The metals analyses were performed according to EPA SW-846 Method 3050.

QUALITY CONTROL:

Each analysis included a certified quality control sample. The true value of the parameter in the QC sample and the percent recovery in our analysis are included in this report.

TEST RESULTS:

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	QC <u>True Value</u>	<u>% Recovery</u>
Cyanide, ppm	0.3	0.2	77	2	0.561	100
Cadmium, ppm	<5	<5	3100	<5	0.078	96
Chromium, ppm	55	31	45,000	28	0.52	100
Nickel, ppm	2	5	28	34	0.41	102

Respectfully Submitted,

BOWSER-MORNER, INC.

Phyllis S. Szotak
Phyllis S. Szotak, Chemist
Analytical Sciences Division

All samples recovered for this project will be retained at this laboratory for a period of 30 days unless we are informed to the contrary.